

CLAIM LISTING:

1. (Currently amended) A synthetic biomaterial comprising:  
a bioactive polymer comprised of at least one peptide and/or protein subunit and at least one polysaccharide and/or proteoglycan subunit; and  
a biocompatible polymer that is different from said bioactive polymer,  
wherein the peptide and/or protein subunit of the bioactive polymer is a cell adhesion peptide and wherein the cell adhesion peptide is dRGD peptide, a YIGSR peptide (SEQ ID NO: 16) or a IVKAV peptide (SEQ ID NO: 20), and the at least one peptide and/or protein subunit is covalently bonded to the at least one polysaccharide and/or proteoglycan subunit.
2. (Previously Presented) The biomaterial of claim 1, wherein the biocompatible polymer is a synthetic polymer.
3. (Withdrawn) The biomaterial of claim 1, wherein the biocompatible polymer is a different bioactive polymer.
4. (Previously Presented) The biomaterial of claim 1, wherein the polysaccharide and/or proteoglycan subunit of the bioactive polymer is selected from the group consisting of aggrecan, agrin, bamacan, heparan sulfate, chondroitin sulfate, keratan sulfate, perlecan, hyaluronan, decorin, dermatan sulfate, biglycan, fibromodulin, alginate, polylactate, polyglycolic acid, starch, dextran, agarose and heparin.
5. (Previously Presented) The biomaterial of claim 4, wherein the polysaccharide and/or proteoglycan subunit of the bioactive polymer is selected from the group consisting of heparan sulfate, perlecan, keratan sulfate, chondroitin sulfate, heparin and decorin.
- 6-14. (Canceled)
15. (Withdrawn) The biomaterial of claim 1, wherein the bioactive polymer is comprised of more than one peptide and/or protein subunit.

16. (Withdrawn) The biomaterial of claim 1, wherein the bioactive polymer is comprised of more than one polysaccharide and/or proteoglycan subunit.

17. (Withdrawn) The biomaterial of claim 3, wherein the different bioactive polymer is comprised of more than one peptide and/or protein subunit.

18. (Withdrawn) The biomaterial of claim 3, wherein the different bioactive polymer is comprised of more than one polysaccharide and/or proteoglycan subunit.

19. (Currently amended) The biomaterial of claim 1, wherein the biocompatible polymer is a synthetic polymer selected from the group consisting of polyurethane, a polymer containing isobutylene, polystyrene-isobutylene-polystyrene, hydrogel, silicone, a polymer containing N-butyl methacrylate, a polymer containing glycidyl methacrylate and combinations thereof.

20. (Withdrawn, Currently amended) The biomaterial of claim 19, wherein the hydrogel is selected from a polymer containing 2- hydroxyethylmethacrylate, polyvinyl alcohol, polyethylene oxide, ~~or~~ polyethylene glycol and combinations thereof.

21. (Withdrawn) The biomaterial of claim 1, wherein the biocompatible polymer is hyaluronic acid.

22-23. (Canceled)

24. (Withdrawn) The biomaterial of ~~claim 23~~ claim 1, wherein the biocompatible polymer is a polyurethane, a polyethylene oxides, a silicone polymer SIBS, or N-butyl methacrylate.

25. (Previously Presented) The biomaterial of claim 1, wherein the biocompatible polymer and the bioactive polymer are a miscible polymer blend.

26. (Currently amended) A synthetic biomaterial comprising:  
a bioactive polymer comprised of at least one peptide and/or protein

subunit and at least one polysaccharide and/or proteoglycan subunit; and  
a biocompatible polymer,

wherein the peptide and/or protein subunit of the bioactive polymer is a cell adhesion  
peptide and wherein the cell adhesion peptide is dRGD peptide, a YIGSR peptide (SEQ ID NO:  
16) or a IVKAV peptide (SEQ ID NO: 20), and the at least one peptide and/or protein subunit is  
covalently bonded to the at least one polysaccharide and/or proteoglycan subunit and ~~The~~  
~~biomaterial of claim 1,~~ wherein the biocompatible polymer and the bioactive polymer are an  
immiscible polymer blend.

27. (Currently amended) A synthetic biomaterial comprising:

a bioactive polymer comprised of at least one peptide and/or protein subunit and at least  
one polysaccharide and/or proteoglycan subunit; and

a biocompatible polymer that is different from said bioactive polymer;

wherein the bioactive polymer and the biocompatible polymer are crosslinked, and the at  
least one peptide and/or protein subunit is covalently bonded to the at least one polysaccharide  
and/or proteoglycan subunit.

28. (Currently amended) A synthetic biomaterial comprising a copolymer of:

a bioactive polymer comprised of at least one peptide and/or protein subunit and at least  
one polysaccharide and/or proteoglycan subunit; and

a biocompatible polymer that is different from said bioactive polymer,

wherein the at least one peptide and/or protein subunit is covalently bonded to the at least  
one polysaccharide and/or proteoglycan subunit.

29. (Currently amended) A synthetic biomaterial comprising a graft polymer of:

a bioactive polymer comprised of at least one peptide and/or protein subunit and at least  
one polysaccharide and/or proteoglycan subunit; and

a biocompatible polymer that is different from said bioactive polymer,

wherein the at least one peptide and/or protein subunit is covalently bonded to the at least  
one polysaccharide and/or proteoglycan subunit.

30. (Currently amended) A synthetic biomaterial comprising a graft polymer of:

~~a biocompatible polymer;~~

a bioactive polymer comprising a polysaccharide and/or proteoglycan subunit and a peptide and/or protein subunit;

a biocompatible polymer that is different from said bioactive polymer;

wherein the polysaccharide and/or proteoglycan subunit is covalently bonded to the biocompatible polymer.

31. (Currently amended) A synthetic biomaterial comprising:

a bioactive polymer consisting of at least one peptide and/or protein subunit and at least one polysaccharide and/or proteoglycan subunit; and

a biocompatible polymer that is different from said bioactive polymer,

wherein the peptide and/or protein subunit of the bioactive polymer is a cell adhesion peptide and wherein the cell adhesion peptide is a dRGD peptide, YIGSR peptide (SEQ ID NO: 16) or a IVKAV peptide (SEQ ID NO: 20), and the at least peptide and/or protein subunit is covalently bonded to the at least one polysaccharide and/or proteoglycan subunit.

32. (Previously Presented) The biomaterial of claim 31, wherein the biocompatible polymer and the bioactive polymer are a miscible polymer blend.

33. (Withdrawn) The biomaterial of claim 31, wherein the biocompatible polymer and the bioactive polymer are an immiscible polymer blend.

34. (Currently amended) A synthetic biomaterial comprising:

a bioactive polymer consisting of at least one peptide and/or protein subunit and at least one polysaccharide and/or proteoglycan subunit; and

a biocompatible polymer that is different from said bioactive polymer;

wherein the bioactive polymer and the biocompatible polymer are crosslinked, and the at least one peptide and/or protein subunit is covalently bonded to the at least one polysaccharide and/or proteoglycan subunit.

35. (Currently amended) A synthetic biomaterial comprising a copolymer:

of a bioactive polymer consisting of at least one peptide and/or protein subunit and at least one polysaccharide and/or proteoglycan subunit;

and a biocompatible polymer that is different from said bioactive polymer,

wherein the at least one peptide and/or protein subunit is covalently bonded to the at least one polysaccharide and/or proteoglycan subunit.

36. (Currently amended) A synthetic biomaterial comprising a graft polymer:

of a bioactive polymer consisting of at least one peptide and/or protein subunit and at least one polysaccharide and/or proteoglycan subunit; and

a biocompatible polymer that is different from said bioactive polymer.

37. (Currently amended) A synthetic biomaterial comprising a graft polymer of:

~~a biocompatible polymer;~~

a bioactive polymer consisting of a polysaccharide and/or proteoglycan subunit and a peptide and/or protein subunit; and

a biocompatible polymer that is different from said bioactive polymer;

wherein the polysaccharide and/or proteoglycan subunit is covalently bonded to the biocompatible polymer.

38. (Previously presented) A synthetic biomaterial comprising:

a bioactive polymer comprised of at least one peptide and/or protein subunit and at least one polysaccharide and/or proteoglycan subunit; and

a biocompatible polymer,

wherein the peptide and/or protein subunit of the bioactive polymer is a cell adhesion peptide and wherein the cell adhesion peptide is a RGD peptide, a dRGD peptide, a YIGSR peptide (SEQ ID NO: 16) or a IVKAV peptide (SEQ ID NO: 20), and the at least one peptide and/or protein subunit is covalently bonded to the at least one polysaccharide and/or proteoglycan subunit, and wherein the biocompatible polymer and the bioactive polymer are an immiscible polymer blend.

39. (New) The biomaterial of claim 1, wherein the biocompatible polymer is polystyrene-isobutylene-polystyrene, a polyurethane, an ethylene vinyl acetate copolymer, a polyolefin elastomer, a polyamide elastomer, or homopolymer or copolymer comprising a monomer such as isobutylene, butyl acrylate, butyl methacrylate, and combinations thereof.

40. (New) The biomaterial of claim 27, wherein the biocompatible polymer is polystyrene-isobutylene-polystyrene, a polyurethane, an ethylene vinyl acetate copolymer, a polyolefin elastomer, a polyamide elastomer, or homopolymer or copolymer comprising a monomer such as isobutylene, butyl acrylate, butyl methacrylate, and combinations thereof.

41. (New) The biomaterial of claim 28, wherein the biocompatible polymer is polystyrene-isobutylene-polystyrene, a polyurethane, an ethylene vinyl acetate copolymer, a polyolefin elastomer, a polyamide elastomer, or homopolymer or copolymer comprising a monomer such as isobutylene, butyl acrylate, butyl methacrylate, and combinations thereof.

42. (New) The biomaterial of claim 29, wherein the biocompatible polymer is polystyrene-isobutylene-polystyrene, a polyurethane, an ethylene vinyl acetate copolymer, a polyolefin elastomer, a polyamide elastomer, or homopolymer or copolymer comprising a monomer such as isobutylene, butyl acrylate, butyl methacrylate, and combinations thereof.

43. (New) The biomaterial of claim 30, wherein the biocompatible polymer is polystyrene-isobutylene-polystyrene, a polyurethane, an ethylene vinyl acetate copolymer, a polyolefin elastomer, a polyamide elastomer, or homopolymer or copolymer comprising a monomer such as isobutylene, butyl acrylate, butyl methacrylate, and combinations thereof.

44. (New) The biomaterial of claim 31, wherein the biocompatible polymer is polystyrene-isobutylene-polystyrene, a polyurethane, an ethylene vinyl acetate copolymer, a polyolefin elastomer, a polyamide elastomer, or homopolymer or copolymer comprising a monomer such as isobutylene, butyl acrylate, butyl methacrylate, and combinations thereof.

45. (New) The biomaterial of claim 34, wherein the biocompatible polymer is polystyrene-isobutylene-polystyrene, a polyurethane, an ethylene vinyl acetate copolymer, a polyolefin elastomer, a polyamide elastomer, or homopolymer or copolymer comprising a monomer such as isobutylene, butyl acrylate, butyl methacrylate, and combinations thereof.

46. (New) The biomaterial of claim 35, wherein the biocompatible polymer is polystyrene-isobutylene-polystyrene, a polyurethane, an ethylene vinyl acetate copolymer, a polyolefin elastomer, a polyamide elastomer, or homopolymer or copolymer comprising a monomer such as isobutylene, butyl acrylate, butyl methacrylate, and combinations thereof.

47. (New) The biomaterial of claim 36, wherein the biocompatible polymer is polystyrene-isobutylene-polystyrene, a polyurethane, an ethylene vinyl acetate copolymer, a polyolefin elastomer, a polyamide elastomer, or homopolymer or copolymer comprising a monomer such as isobutylene, butyl acrylate, butyl methacrylate, and combinations thereof.

48. (New) The biomaterial of claim 37, wherein the biocompatible polymer is polystyrene-isobutylene-polystyrene, a polyurethane, an ethylene vinyl acetate copolymer, a polyolefin elastomer, a polyamide elastomer, or homopolymer or copolymer comprising a monomer such as isobutylene, butyl acrylate, butyl methacrylate, and combinations thereof.